

### **REMARKS**

Claims 1-13, 15-17, 19-30 and 32-36 are pending in the application. By this Amendment, Claims 1-3, 10-12, 15-17, 19, 20, 23-30 and 32-36 are amended, and Claims 14, 18 and 31 are canceled without prejudice or disclaimer of the subject matter contained therein, and Claims 37-49 are canceled as being drawn to a non-elected invention. Favorable reconsideration is respectfully requested in light of the following Remarks.

Applicant gratefully acknowledges that the Office action indicates that Claims 15, 16 and 36 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. For the reasons set forth below, it is respectfully submitted that the application is in condition for allowance.

#### **I. Election/Restriction**

Applicant acknowledges that the Office action has made final the Election/Restriction Requirement. By this Amendment, Claims 37-49 are canceled as being drawn to a non-elected invention.

#### **II. Miscellaneous**

The Office action objects to Claims 4, 7, 14, 18, 21-26, 29 and 30 as being of improper dependent form for failing to further limit the subject matter of a previous claim. The objection is respectfully traversed.

With respect to Claims 4, 7, 21-26, 29 and 30, Applicant is confused as to this objection and respectfully submits that these claims further limit the subject matter of the previous claim. For example, the system of Claim 1 recites a source of metal. Claim 4 further limits the source of metal as comprising at least one of metal revert and virgin metal material, and therefore, further limits the subject matter of Claim 1. Similarly, Claims 7, 21-26, 29 and 30 further limit the subject matter of the previous claim. Withdrawal of the objection is respectfully requested.

The Office action also objects to Claims 14 and 18. By this Amendment, Claims 14 and 18 are canceled, thereby rendering the objection moot. Withdrawal of the objection is respectfully requested.

The Office action also objects to Claims 10 and 15 for lack of antecedent basis. By this Amendment, Claims 10 and 15 are amended to ultimately depend from Claim 2, rather than from Claim 1 to provide proper antecedent basis. Withdrawal of the objection is respectfully requested.

### III. The Claims Define Patentable Subject Matter

1. The Office action rejects Claim 34 under 35 U.S.C. 102(b) over Shimizu et al. (U.S. Patent No. 5,224,534, hereinafter "Shimizu"). The rejection is respectfully traversed.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. *See MPEP §2131*. Contrary to the Office action that all of the elements of Claim 34 are disclosed in Shimizu, at least the feature of a liquid slag layer overlying the cold hearth vessel, is not disclosed, taught or suggested in Shimizu, so the rejection is unsupported by the art and should be withdrawn.

For at least this reason, independent Claim 34 is allowable over the applied art. Withdrawal of the rejection is respectfully requested.

In addition, there is no mention in Shimizu of at least the feature of a power supply for electrically heating the liquid slag layer, so the rejection is unsupported by the art and should be withdrawn.

For at least this additional reason, independent Claim 34 is allowable over the applied art. Withdrawal of the rejection is respectfully requested.

Further, there is no mention in Shimizu of at least the feature of a non-consumable, electrically conductive electrode, in contact with the slag layer, and electrically coupled to the power supply for providing additional thermal energy to the liquid slag layer so the rejection is unsupported by the art and should be withdrawn.

For at least this additional reason, independent Claim 34 is allowable over the

applied art. Withdrawal of the rejection is respectfully requested.

2. The Office action rejects Claims 1, 4-14 and 17-32 under 35 U.S.C. 102(e) over Jackson et al. (U.S. Patent No. 6,712,875, hereinafter "Jackson"). The rejection is respectfully traversed.

Contrary to the Office action that all of the elements of Claims 1 and 32 are disclosed in Jackson, at least the feature of a liquid slag layer floating on top of the pool of molten liquid metal, is not disclosed, taught or suggested in Jackson, so the rejection is unsupported by the art and should be withdrawn.

For at least this reason, independent Claims 1 and 32 are allowable over the applied art. Claims 4-14 and 17-31, which depend from Claim 1, are likewise allowable over the applied art. Withdrawal of the rejection is respectfully requested.

In addition, there is no mention in Jackson of at least the feature of a power supply for electrically heating the liquid slag layer, so the rejection is unsupported by the art and should be withdrawn.

For at least this additional reason, independent Claims 1 and 32 are allowable over the applied art. Claims 4-14 and 17-31, which depend from Claim 1, are likewise allowable over the applied art. Withdrawal of the rejection is respectfully requested.

3. The Office action rejects Claims 2, 3, and 33-35 under 35 U.S.C. 103(a) over Jackson in view of Shimizu. The rejection is respectfully traversed.

According to *MPEP §2143*, to establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Linter*, 458 F.2d 1013, 173 USPQ 560, 562 (CCPA 1972). Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Finally, the applied reference must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Claims 2 and 3 depend from Claim 1, and Claim 35 depends from Claim 34. As

mentioned above, there is no mention in Shimizu of at least the feature of a liquid slag layer overlying the cold hearth vessel, as recited in Claim 1. Jackson does not overcome this shortcoming in Shimizu. Thus, the combination of Jackson and Shimizu does not disclose, teach or suggest all the claim limitations as recited in Claims 1, 33 and 34.

For at least this reason, the Office action fails to establish a *prima facie* case of obviousness, and Claims 2, 3 and 33-35 are allowable over the applied art, taken singly or in combination. Withdrawal of the rejection is respectfully requested.

#### IV. Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of the application is earnestly solicited.

Should Examiner Kastler believe anything further would be desirable in order to place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

It is believed that any additional fees due with respect to this paper have already been identified. However, if any additional fees are required in connection with the filing of this paper, permission is given to charge account number 07-0868 in the name of General Electric Company.

Respectfully submitted,

11 September 2007

/Peter J. Rashid/  
\_\_\_\_\_

Peter J. Rashid  
Reg. No. 39,464

\_\_\_\_\_  
Telephone: (810) 227-9077